

## CLAIMS

What is claimed is:

1. A composition comprising a sperm cell medium for mammalian, avian, or piscian sperm cells, wherein the medium comprises at least one growth factor selected from the group consisting of insulin-like growth factors and transforming growth factors.
2. The composition of claim 1, wherein the cells are mammalian cells.
3. The composition of claim 2, wherein the cells are porcine cells.
4. The composition of claim 2, wherein the cells are equine cells.
5. The composition of claim 2, wherein the cells are bovine cells.
6. The composition of claim 2, wherein the cells are ovine cells.
7. The composition of claim 2, wherein the cells are human cells.
8. The composition of claim 1, wherein the cells are avian cells.
9. The composition of claim 1, wherein the cells are piscian cells.
10. The composition of claim 1, wherein the medium comprises transforming growth factor.
11. The composition of claim 10, wherein the transforming growth factor comprises  $\text{TGF}\beta$ -1.
12. The composition of claim 10, wherein the transforming growth factor comprises  $\text{TGF}\beta$ -2.
13. The composition of claim 10, wherein the transforming growth factor comprises  $\text{TGF}\beta$ -1 and  $\text{TGF}\beta$ -2.
14. The composition of claim 1, wherein the medium comprises insulin-like growth factor.

15. The composition of claim 14, wherein the insulin-like growth factor comprises IGF-1.
16. The composition of claim 10, wherein the medium further comprises insulin-like growth factor.
17. The composition of claim 13, wherein the medium further comprises IGF-1.
18. The composition of claim 1, wherein the medium further comprises at least one component selected from the group consisting of inositol, transferrin, and fructose.
19. A composition comprising a reproductive cell medium for mammalian, avian, or piscian reproductive cells, wherein the medium comprises zinc.
20. The composition of claim 19, wherein the medium further comprises at least one growth factor selected from the group consisting of insulin-like growth factors and transforming growth factors.
21. The composition of claim 19, wherein the medium is in liquid form and the zinc is present in a concentration from about 0.1 mg/L to about 300 mg/L.
22. The composition of claim 19, wherein the medium further comprises a component selected from the group consisting of inositol, transferrin, and fructose.
23. The composition of claim 11, wherein the medium is in liquid form and the TGF $\beta$ -1 is present in a concentration from about 0.1 ng/L to about 10  $\mu$ g/L.
24. The composition of claim 23, wherein the TGF $\beta$ -1 is present in a concentration from about 20 ng/L to about 400 ng/L.
25. The composition of claim 24, wherein the TGF $\beta$ -1 is present in a concentration from about 50 ng/L to about 150 ng/L.
26. The composition of claim 12, wherein the medium is in liquid form and the TGF $\beta$ -2 is present in a concentration from about 0.1 ng/L to about 200 ng/L.
27. The composition of claim 26, wherein the TGF $\beta$ -2 is present in a concentration from about 0.4 ng/L to about 16 ng/L.

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28. The composition of claim 26 wherein the TGF $\beta$ -2 is present in a concentration from about 1.8 ng/L to about 3.8 ng/L
29. The composition of claim 14, wherein the medium is in liquid form and the IGF-1 is present in a concentration from about 0.1 ng/L to about 30  $\mu$ g/L.
30. The composition of claim 29 wherein the IGF-1 is present in a concentration from about 40 ng/L to about 640 ng/L.
31. The composition of claim 29; wherein the IGF-1 is present in a concentration from about 200 ng/L to about 450 ng/L.
32. The composition of claim 1; wherein the medium further comprises a cryopreservative.
33. A composition comprising a sperm cell medium for mammalian, avian, or piscian sperm cells, wherein the medium comprises transferrin.
34. A composition comprising a reproductive cell medium for mammalian, avian, or piscian reproductive cells, wherein the medium comprises a growth factor selected from the group consisting of activated TGF $\beta$ -1, activated TGF $\beta$ -2, and activated IGF-1.
35. The composition of claim 34, wherein the medium comprises activated TGF $\beta$ -1.
36. The composition of claim 35, wherein the activated TGF $\beta$ -1 comprises at least about 75% unbound TGF $\beta$ -1.
37. The composition of claim 35, wherein the activated TGF $\beta$ -1 comprises at least about 90% unbound TGF $\beta$ -1.
38. The composition of claim 34, wherein the medium comprises activated TGF $\beta$ -2.
39. The composition of claim 38, wherein the activated TGF $\beta$ -2 comprises at least about 75% unbound TGF $\beta$ -2.
40. The composition of claim 38, wherein the activated TGF $\beta$ -2 comprises at least about 90% unbound TGF $\beta$ -2.

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41. The composition of claim 34, wherein the medium comprises activated TGF $\beta$ -1 and activated TGF $\beta$ -2.
42. The composition of claim 41, where the activated TGF $\beta$ -1 comprises at least about 75% unbound TGF $\beta$ -1 and the activated TGF $\beta$ -2 comprises at least about 75% unbound TGF $\beta$ -2.
43. The composition of claim 41, where the activated TGF $\beta$ -1 comprises at least about 90% unbound TGF $\beta$ -1 and the activated TGF $\beta$ -2 comprises at least about 90% unbound TGF $\beta$ -2.
44. The composition of claim 34, wherein the medium comprises activated IGF-1.
45. The composition of claim 44, where the activated IGF-1 comprises at least about 75% unbound IGF-1.
46. The composition of claim 44, where the activated IGF-1 comprises at least about 90% unbound IGF-1.
47. A composition comprising a reproductive cell medium for mammalian, avian, or piscian reproductive cells, wherein the medium comprises inositol, and wherein the inositol is present in a concentration of from about 1 mg/L to about 1 g/L.
48. The composition of claim 1, wherein the medium further comprises zinc.
49. A composition comprising a sperm cell medium for porcine sperm cells, wherein the medium comprises TGF $\beta$ -1, TGF $\beta$ -2, and IGF-1
50. A composition comprising sperm cell medium for porcine sperm cells, wherein the medium comprises activated TGF $\beta$ -1, activated TGF $\beta$ -2, and activated IGF-1.
51. The composition of claim 50, where the activated TGF $\beta$ -1 comprises at least 75% unbound TGF $\beta$ -1, the activated TGF $\beta$ -2 comprises at least 75% unbound TGF $\beta$ -2, and the activated IGF-1 comprises at least 75% unbound IGF-1.

52. The composition of claim 50, wherein the activated TGF $\beta$ -1 comprises at least 90% unbound TGF $\beta$ -1, the activated TGF $\beta$ -2 comprises at least 90% unbound TGF $\beta$ -2, and the activated IGF-1 comprises at least 90% unbound IGF-1.

53. A method for collecting, holding, processing, sexing, culturing, storing or in vitro fertilization mammalian, avian or piscian sperm cells, comprising contacting the sperm cells with the composition of claim 1.

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